

While this approach may work well in a case where a limited amount of information is to be made available to users, in a case of a large amount of information, such as where a large number of web pages is provided, adapting the contents to different languages or formats may be time consuming and cost prohibitive.

#### SUMMARY OF THE INVENTION

Methods, systems, and articles of manufacture consistent with the present invention provide resources, such as resource data, to a user, wherein the resources are adapted the user environment. This allows an application program to present information to different users in different versions at a reduced development cost. Instead of containing, for example, text information to display to a user, the application program contains a resource identifier, which identifies that a piece of information is to be displayed. The resource identifier is independent of the user environment. A resource program calls a lookup function, which loads a lookup object. The lookup object links the resource identifier to a resource data (e.g., the text information), which is dependent upon the user environment. Thus, the application program is independent of the user environment, yet the resource data, which the application program displays, is adapted to the user environment.

For example, assume that a user, who is located in the United States of America, is to view a date on a web page that is administered by a data server, which is located in Germany. A user parameter identifies that the user is located in the United States. Instead of containing the date information in a particular format, the application program contains a resource identifier to identify that date information is to be presented at a particular location on the web page. In order to present the date information to the user in a format that corresponds to a date format used in the United States of America, the resource calls a lookup function, which loads a lookup object. The lookup object links the resource identifier to a resource data, which provides a proper date format for the United States of America. The application program then presents the date to the user in the format that is adapted to the United States of America.

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In accordance with methods consistent with the present invention, a method in a data processing system for providing resources adapted to at least one of a plurality of user environments is provided. The method comprises the steps of: initiating execution of a program, the program having a session object and a resource identifier that is associated with a plurality of resource data stored in the session object; and while the program is executing, determining from the session object which of the plurality of user environments the program is executing in; and identifying which of the resource data is suitable for the determined user environment by using both the resource identifier and the determined user environment.

In accordance with methods consistent with the present invention, a method in a data processing system for providing resources adapted to at least one of a plurality of user environments is provided. The method comprises the steps of: initiating execution of a program, the program having a session object and a resource identifier that is associated with a plurality of resource data stored in the session object; and while the program is executing, determining from the session object which of the plurality of user environments the program is executing in; loading a lookup object for linking the resource identifier with a resource data suitable for the determined user environment; and obtaining the suitable resource data from the lookup object by using the resource identifier and the determined user environment.

In accordance with articles of manufacture consistent with the present invention, a computer-readable medium is provided. The computer-readable medium contains instructions that cause a data processing system to perform a method for providing resources adapted to at least one of a plurality of user environments. The method comprises the steps of: initiating execution of a program, the program having a session object and a resource identifier that is associated with a plurality of resource data stored in the session object; and while the program is executing, determining from the session object which of the plurality of user environments the program is executing in; and identifying which of the resource data is suitable for the determined user environment by using both the resource identifier and the determined user environment.

In accordance with articles of manufacture consistent with the present invention, a computer-readable medium is provided. The computer-readable medium contains instructions that cause a data processing system to perform a method for providing resources adapted to at least one of a plurality of user environments, the method comprising the steps of: initiating execution of a program, the program having a session object and a resource identifier that is associated with a plurality of resource data stored in the session object; and while the program is executing, determining from the session object which of the plurality of user environments the program is executing in; loading a lookup object for linking the resource identifier with a resource data suitable for the determined user environment; and obtaining the suitable resource data from the lookup object by using the resource identifier and the determined user environment.

In accordance with systems consistent with the present invention, a data processing system for providing resources adapted to at least one of a plurality of user environments is provided. The data processing system comprises: a memory comprising a program having a session object and a resource identifier that is associated with a plurality of resource data stored in the session object, the program determining from the session object which of a plurality of user environments the program is executing in, and identifying which of the resource data is suitable for the determined user environment by using both the resource identifier and the determined user environment; and a processing unit that runs the program.

In accordance with systems consistent with the present invention, a data processing system for providing resources adapted to at least one of a plurality of user environments is provided. The data processing system comprises: means for initiating execution of a program, the program having a session object and a resource identifier that is associated with a plurality of resource data stored in the session object; and means for, while the program is executing, determining from the session object which of the plurality of user environments the program is executing in, and identifying which of the resource data is suitable for the determined user environment by using both the resource identifier and the determined user environment.